

CLAIMS

The invention claimed is:

1. A device that controls both the temperature and the humidity of air through the temperature control of two or more fluid volumes, one of which is water.
2. The invention as set forth in claim 1 and comprising of a section that humidifies air by pumping or blowing air directly through a liquid volume of water, the volume of which is held relatively constant by means of airtight water overflow valves and a connection to a water line coupled with a valve that prompts the filling of the section when the water level is below a set value, and the vat in which the water is contained has valves that allow air to enter and bubble through but do not allow water to escape.
3. The invention as set forth in claim 2 and comprising of a section containing piping of an appreciable thermal conductivity that can be used as a means of heat transfer, positioned to allow any condensate that forms on it to flow into the section responsible for the humidification of the air stream or out of the unit.
4. The invention as set forth in claim 3 and comprising of a duct that carries air from the section containing heat transfer piping into a chamber where its temperature can be

other things, a refrigeration unit that incorporates a two or three way valve leading to its evaporation coils.

5. The invention as set forth in claim 4 and having the ability to be attached to a duct or system of ducts of some kind to aid in the movement of air that has passed through the unit.

6. The invention as set forth in claim 5 and comprising of a temperature sensitive control system that maintains the preset temperature of the two heat transferring fluid volumes within a set range,

by means of a single heat pump that has two evaporation tubes, each in thermal contact with one of the aforementioned fluid volumes and valves that allow the fluid within the heat pump to be split between the evaporation tubes in any proportion

and by means of two heating elements of some kind, each in thermal contact with one of the aforementioned fluid volumes.

7. The invention as set forth in claim 6 and comprising of a sensor external to the unit that triggers the operation of the air pump or blower when the temperature and/or humidity deviates from preset values by a set degree.

8. The invention as set forth in claim 7 where the method of changing the temperature of the air to its final temperature is thermal contact with the vat of water used to humidify the air stream.

9. The invention as set forth in claim 7 and comprising of a duct to direct airflow from the intake air mover into the condensation section, bypassing the humidification section of the device.

10. The invention as set forth in claim 7 and comprising of an adjustable, pressure sensitive valve designed to increase the pressure inside the device while still allowing air to flow through the machine.

11. The invention as set forth in claim 7 and having the ability to sterilize the air stream flowing through it by heating and pressurizing the air as well as the heat transfer fluids.

12. The invention as set forth in claims 1-11,

or as set forth in any claim numbered 8-11,

or as set forth in any combination of claims 8-11.